

From the main stem of the Simple Ascidiæ (see table, p. 150) close to *Ciona* several lines are shown diverging to the various groups of the Ascidiidæ. *Rhodosoma* was derived, I consider, from *Ciona*. It is a remarkable form,¹ in which the test on the anterior part of the body has been modified to form a hood which by muscular contraction can be shut down so as to cover both the apertures. One species of *Ciona*, *C. savignii*, from Japan, shows a tendency towards the modification of the test found in its extreme condition in *Rhodosoma*.

Two important lines from near *Ciona* have diverged to *Ascidia* and its allies on the one hand, and to *Corella* and its allies on the other (see table, p. 150). In *Ciona* the stomach and intestine form a simple loop extending slightly beyond the branchial sac, and the heart is a fusiform tube running antero-posteriorly alongside the stomach. In *Corella*² and its allies, however, the branchial sac has extended posteriorly so as to cause the alimentary canal as a whole to lie upon the right-hand side of the branchial sac, the stomach being anterior to the intestine, and the heart placed in front of the stomach. On the other hand, in the branch leading to *Ascidia* and allied genera the branchial sac must have extended downwards upon the right-hand side of the body so as to throw the alimentary canal to the left, and carrying the stomach with it, that organ has come to be placed behind the intestine, and the heart behind the stomach.

Pachychlæna and *Ascidiella* and other subdivisions of *Ascidia* may all be represented by short twigs springing from the line leading from the *Ciona*-like ancestor to the typical *Ascidia* (see table, p. 150). *Corynascidia*, on the other hand, belongs to the *Corella* branch; while *Abyssascidia*³ is intermediate in structure between *Ascidia* and *Corella*, and is best represented by a short branch springing from near the base of the line leading to *Corella*, and not far from the point occupied by the common ancestors of all the groups of Ascidiidæ. The very remarkable *Chelyosoma*⁴ is an extreme modification of a side branch from near *Corella*. As in the other Corellinæ, the stigmata in the branchial sac have become curved, while in the Ascidiinæ they are straight; but unlike any other Ascidiidæ, the test has become modified into a set of regularly-shaped horny plates, of which eight surround the branchial aperture and six the atrial. An approach to this condition of the test is seen in *Styela tessellata* and some other species of the Cynthiidæ.

The main stem of the Simple Ascidiæ beyond the ancestral Ascidiidæ leads to a great series of forms in which the branchial sac is highly developed, and has its surface largely increased by being thrown into a series of longitudinal folds. Before this

¹ See Lacaze-Duthiers, *Ann. d. Sci. Nat.*, sér. 5 (Zool.), tom. iv. p. 293, 1865.

² See Herdman, *Notes on British Ascidiæ*, *Journ. Linn. Soc. Lond.*, Zool., vol. xv. p. 274, 1880.

³ For further details as to the relationships of the genera of the Ascidiidæ, see this Report, Part I. p. 285.

⁴ Eschricht, *Dansk. Vid. Selsk. Afh.*, ix. p. 1, 1842; and Traustedt, *Vid. Medd. Nat. For. Kjøbenhavn*, 1879-80, p. 429.